

# YIC



## **GNSS L1+L5 External Active Antenna ATGGBL54138M-SMA-3**

**Datasheet**

## 1. Product Information

### 1.1 Product Description

This product can be used as various L1+L5 GPS/Beidou/Galileo/GLONASS receivers navigation, clock, positioning.

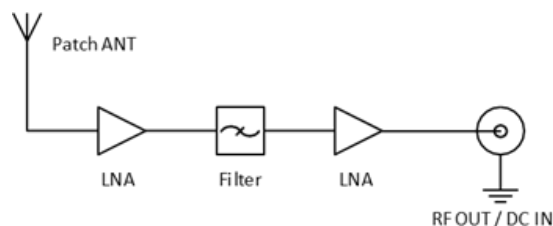
## 2. Part NO. : ATGGBL545138M-SMA-3

## 3. Overall Performance

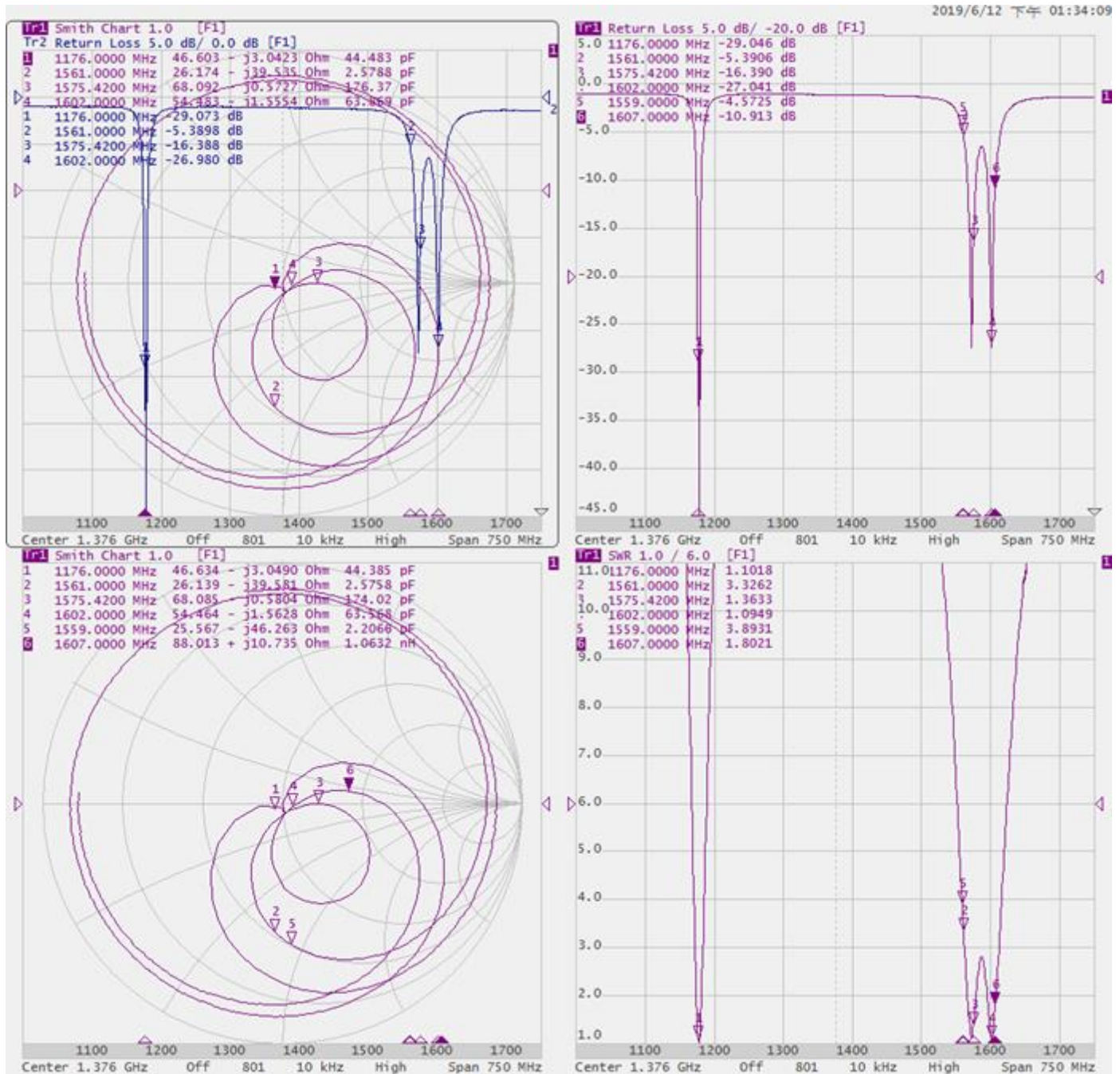
Characteristics	SPEC
Center Frequency	L1: 1575±1.023 MHz for GPS/Galileo L1: 1602±8 MHz for GLONASS L1: 1561±2.046 MHz for BeiDou L5: 1176 ±10 MHz
Voltage	Min: 2.7 V    Typ.: 3.3 V    Max: 5.0V
Current	Typ: 10mA    Max: 15mA
Gain	1561 MHz: 1 dBi Typ. @zenith 1575.42 MHz: 2 dBi Typ. @zenith 1602 MHz: 3.5 dBi Typ. @zenith 1176 MHz: 0 dBi Typ. @zenith
Output VSWR	2.0 max
Output Impedance	50ohm
Dimensions	38±0.4mm(L)×40.5±0.4mm(W)×16.3±0.4mm(H) typ
Mount	Magnetic
Waterproof Rating	IP67
Cable	RG174, $\phi 2.7 \pm 0.2$ mm, COLOR: Black, 80 braid L=3M $\pm$ 50mm
Connector	SMA (Male)
Polarization	R.H.C.P

### 3.1 Circuit Diagram

This antenna system consists of two functional blocks, the LNA portion and the patch antenna.



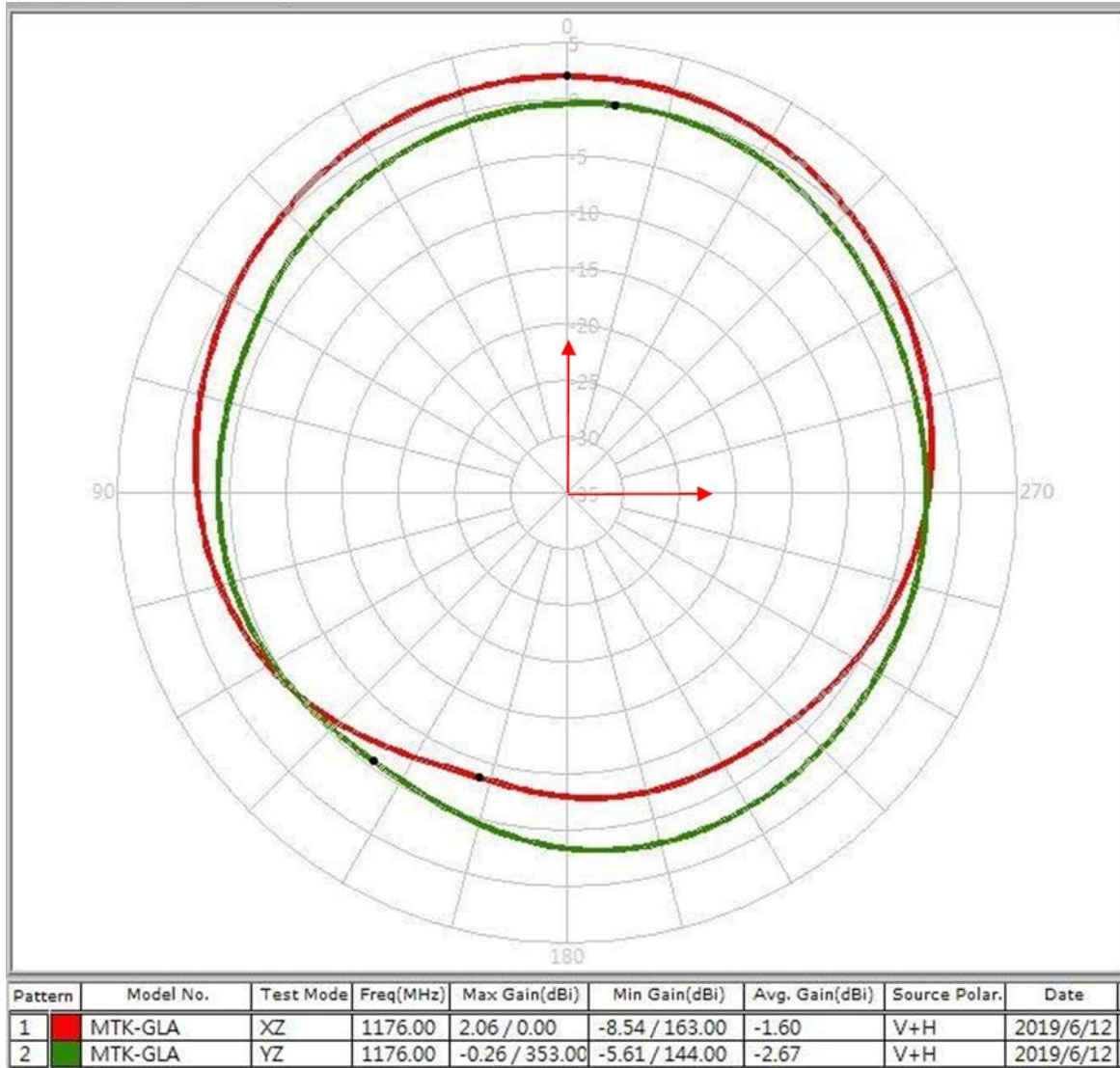
## 4. DA25/DA15 (stack) on L1+L5 Module Housing S11 Return Loss & Smith Chart Measure



	Return Loss(dB)	Impedance(Ohm)	VSWR
1176MHz	-29.04	46.63-j03.04	1.10
1559MHz	-4.57	25.56-j46.26	3.89
1561MHz	-5.39	26.13-j39.58	3.32
1575.42MHz	-16.39	68.08-j00.58	1.36
1602MHz	-27.04	54.46-j01.56	1.09
1607MHz	-10.91	88.01+j10.73	1.80

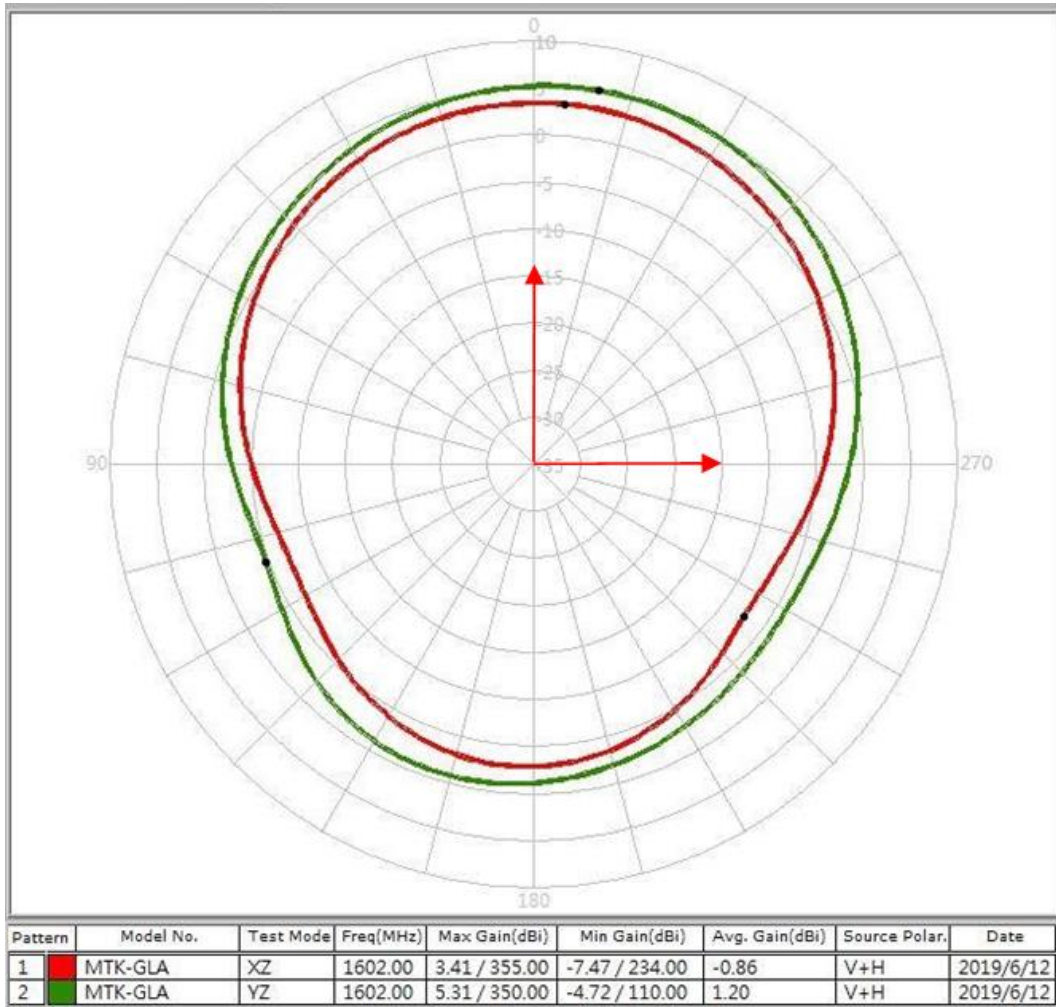
## 5. Gain Pattern Value

5.1 (1176MHz)



	Peak Gain	Zenith Gain
XZ	2.06	2.06
YZ	-0.26	-0.45

## 5.2 (1602 MHz)



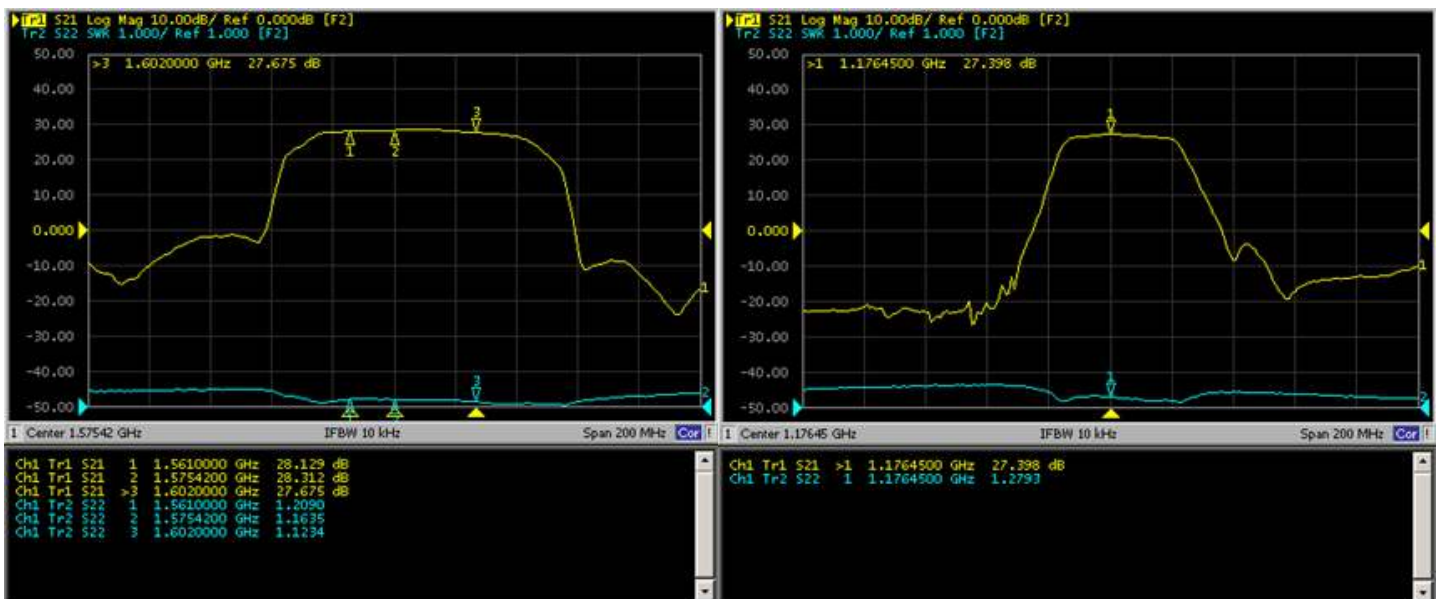
	Peak Gain	Zenith Gain
XZ	3.41	3.36
YZ	5.31	5.13



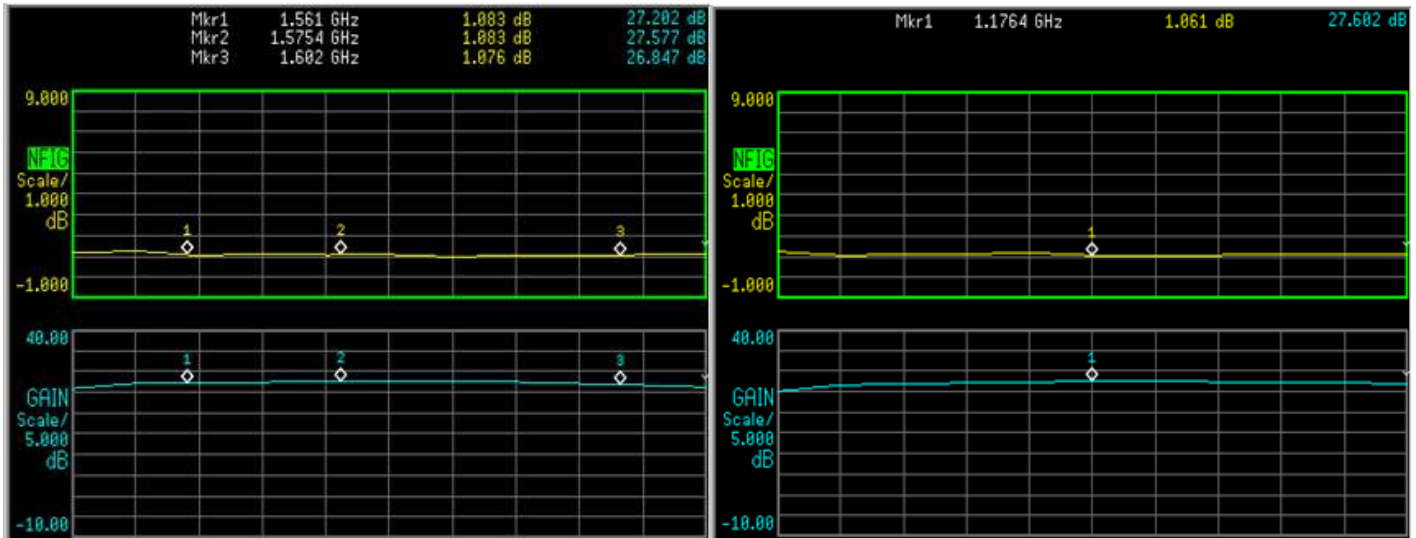
## 6. LNA

Characteristics	SPEC
Frequency Range	L1: 1561±2.046 MHz for Beidou L1: 1575.42±1.023 MHz for GPS/Galileo L1: 1602±8 MHz for GLONASS L5: 1176.45 ±10 MHz
Gain	1561 MHz: 28±3 dB Typ. ( + 25 °C±5°C) 1575.42 MHz: 28±3 dB Typ. ( + 25 °C±5°C) 1602 MHz: 27±3 dB Typ. ( + 25 °C±5°C) 1176.45 MHz: 27±3 dB Typ. ( + 25 °C±5°C)
Noise Figure	1561 MHz: 1 dB Typ. ( + 25 °C±5°C) 1575.42 MHz: 1 dB Typ. ( + 25 °C±5°C) 1602 MHz: 1 dB Typ. ( + 25 °C±5°C) 1176.45 MHz: 1 dB Typ. ( + 25 °C±5°C)
Output Impedance	50 Ω
Output VSWR	2.0 Max

### LNA Gain @3.3V



## LNA Noise Figure @3.3V



## 7. Total Specifications

Characteristics	SPEC
Frequency Range	L1: 1561±2.046 MHz for Beidou L1: 1575.42±1.023 MHz for GPS/Galileo L1: 1602±8 MHz for GLONASS L5: 1176.45 ±10 MHz
Gain@3.3V	At 90° L1: 1561 MHz: 29 dBi @Zenith – Cable Loss(Note:1) L1: 1575.42 MHz: 30 dBi @Zenith – Cable Loss(Note:1) L1: 1602 MHz: 30.5 dBi @Zenith – Cable Loss(Note:1) L5: 1176.45 MHz: 27 dBi @Zenith – Cable Loss(Note:1)
Output Impedance	50 Ω

Note: 1 Cable Loss = Max. (-1.4dB/meter)

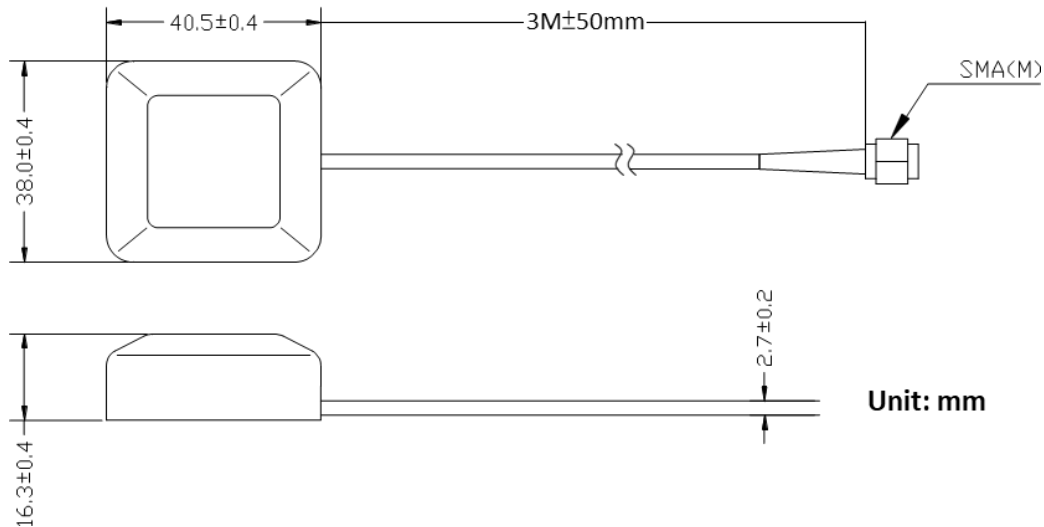
## 8. Operating Condition

Temperature	-40°C to +85°C
Humidity	10% to 95% RH

## 9. Storage Condition

Temperature	-40°C to +85°C
Humidity	10% to 95% RH

## 10. Outline



## 11. Note

1. This product specification guarantees the quality of our product as a single unit. Please make sure that your product is evaluated and confirmed against your specifications when our product is mounted to your product.
2. We cannot warrant against failure caused by any use of our product that deviates from the intended use as described in this product specification.
3. Electrostatic sensitive device Observe precautions for handling.